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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,422	01/23/2004	Ajay I. Sreenivas	1604-409-DIV	8973
22442	7590	08/05/2005	EXAMINER	
SHERIDAN ROSS PC			CHEN, SHIH CHAO	
1560 BROADWAY			ART UNIT	
SUITE 1200			PAPER NUMBER	
DENVER, CO 80202			2821	

DATE MAILED: 08/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/764,422

Applicant(s)

SREENIVAS ET AL.

Examiner

Shih-Chao Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-90 is/are pending in the application.
4a) Of the above claim(s) 1-55 is/are withdrawn from consideration.
5) ☒ Claim(s) 79-90 is/are allowed.
6) ☐ Claim(s) 56-61, 66-76 and 78 is/are rejected.
7) ☒ Claim(s) 62-65 and 77 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 23 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/23/04.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Claims 46-55 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on June 16, 2005.

Claim Objections

2. Claim 68 is objected to because of the following informalities: in line 3, "said first plurality of radiator elements" should be changed to --said first plurality of antenna elements--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 56-59, 66-67, 75-76 and 78 are rejected under 35 U.S.C. 102(b) as being anticipated by Jones, Jr. (U.S. Patent No. 3,346,865).

Regarding claim 56, Jones, Jr. teaches in figures 1-3 an antenna apparatus, comprising: a dielectric material [12] having at least a first relieved portion [13], wherein a dielectric constant of the dielectric material [12] is modified (i.e. the suitable dielectric) in an area of the at least a first relieved portion; and at least a first radiator element [16] interconnected to the dielectric material.

Regarding claim 57, Jones, Jr. teaches in figures 1-3 the apparatus of Claim 56, wherein the at least a first radiator element [16] is on a first side of the dielectric material [12], the antenna [11] further comprising a ground plane [15] on a second side of the dielectric material.

Regarding claim 58, Jones, Jr. teaches in figures 1-3 the apparatus of Claim 56, wherein the at least a first relieved portion [13] of the dielectric material [12] comprises a hole [13].

Regarding claim 59, Jones, Jr. teaches in figures 1-3 the apparatus of Claim 56, wherein the at least a first relieved portion [13] of the dielectric material [12] comprises a plurality of holes [13].

Regarding claim 66, Jones, Jr. teaches in figures 1-3 the apparatus of claim 56, wherein the dielectric material [12] comprises a sheet of dielectric material.

Regarding claim 67, Jones, Jr. teaches in figures 1-3 the apparatus of Claim 56, further comprising a plurality of antenna elements [16] interconnected to at least a first surface of the dielectric material [12].

Regarding claim 75, Jones, Jr. teaches in figures 1-3 an antenna apparatus, comprising: means [16] for radiating at least a first radio frequency; means [13] for providing at least a first dielectric constant adjacent a first side of the means for radiating at least a first radio frequency, wherein at least a portion [13] of the means for providing at least a first dielectric constant is relieved adjacent the means for radiating at least a first radio frequency; and means [15] for providing a ground plane on a second side of the dielectric means.

Regarding claim 76, Jones, Jr. teaches in figures 1-3 the apparatus of Claim 75, further comprising: means [16] for radiating at least a second radio frequency; and means [12] for providing at least a second dielectric constant adjacent the means for radiating at least a second radio frequency.

Regarding claim 78, Jones, Jr. teaches in figures 1-3 the apparatus of Claim 76, wherein the means [13] for providing at least a first dielectric constant is integral with the means [12] for providing at least a second dielectric constant.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 60-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over John Jr. (Cited above) in view of Scheffe et al. (U.S. Patent No. 6,114,998).

John Jr. teaches every feature of the claimed invention in paragraph 4 except for the plurality of holes are arranged in a triangular pattern or equilateral triangular pattern.

Munson et al. teaches in figure 6 the plurality of holes [603] are arranged in a triangular pattern or equilateral triangular pattern.

In view of the above statement, it would have been obvious to one having ordinary skill in the art at the time the invention was made by using different patterns as taught by Munson et al. in order to provide an antenna unit with steerable antenna

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beams for transmitting and receiving pointing in equal directions (See col. 3, lines 17-19).

7. Claims 68 and 73-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over John Jr. (Cited above) in view of Kanamaluru et al. (U.S. Patent No. 6,1529,166).

John Jr. teaches every feature of the claimed invention in paragraph 4 except for a second plurality of antenna elements comprising a second array on the first surface of the dielectric material and interlaced with the first plurality of antenna elements; an area occupied by the first array substantially overlaps an area occupied by the second array; and a plurality of signal amplifiers.

Kanamaluru et al. teaches in figures 1-4 a second plurality of antenna elements comprising a second array [102H] on the first surface of the dielectric material [208] and interlaced with the first plurality of antenna elements; an area occupied by the first array [102M] substantially overlaps an area occupied by the second array [102H]; and a plurality of signal amplifiers [306I, 306N].

In view of the above statement, it would have been obvious to one having ordinary skill in the art at the time the invention was made by using the second array on the first surface of the dielectric material and interlaced with the first plurality of antenna elements as taught by Kanamaluru in order to have the sub-arrays are interspersed (See Abstract).

Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11

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F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 56-59, 66-76 and 78 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5, 7-8, 10 and 16 of U.S. Patent No. 6,795,020. Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter.

Allowable Subject Matter

9. Claims 79-90 are allowed.
10. Claims 62-65 and 77 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
11. The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the allowance of claims 79-90 is the inclusion of the method step of forming a number of holes of the first selected diameter in the selected material to obtain a modified dielectric constant that is less than the dielectric constant

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of the selected material without the holes. It is this step found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-Chao Chen whose telephone number is (571) 272-1819. The examiner can normally be reached on Monday-Friday from 7 AM to 4:30 PM, First Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shih-Chao Chen
Shih-Chao Chen
Primary Examiner
Art Unit 2821

SHIH-CHAO CHEN
PRIMARY EXAMINER

SXC
August 3, 2005